If You "Suspect Sepsis," Give Fluid
-By Dr. David Goldstein, Contra Costa EMS Medical Director

The 2017 treatment guideline "Suspected Sepsis" is new and supports up to a two-liter fluid bolus in patients who, by history and vital signs, are at risk for sepsis.

Patients with severe sepsis and septic shock are easily recognized: severely ill, hypotensive, mottled, often confused. Severe sepsis is the later stages of the body's immune response to infection and reflects a clinical picture of inadequate organ and tissue perfusion. These are some of the sickest patients we care for.

Various statistics are quoted but in this population, even with the best treatment, 30-day mortality approaches 30%. Many of those who do survive are permanently disabled with renal failure, heart failure, cognitive decline, etc. Despite significant improvements in intensive care medicine, the population of patients that suffer severe sepsis typically has a very challenging hospital course and, if they survive, do so with a difficult path to recovery. This is a population of patients for whom, once severe sepsis has developed, fluid resuscitation and antibiotics alone are rarely adequate to reverse hypotension or prevent progression to multi-organ failure.
The past few years have seen a recognition that patients who are at risk for sepsis can be identified early, and that intervention in this group can dramatically decrease the number who will progress to severe sepsis. Hospitals now continuously screen patients for signs of early sepsis and have formalized processes for rapid intervention.

A wide net is cast using vital signs and clinical impression as a trigger (tachycardia, tachypnea, fever, confusion or hypotension, coupled with suspicion for an infectious process). In the emergency department or hospital setting, a patient who meets screening criteria receives a rapid fluid bolus coupled with IV antibiotics. While this leads to treating a large group of patients who may never have progressed to sepsis or severe sepsis, studies show that early intervention in the larger population successfully prevents many patients from progressing to septic shock.

Hospitals have demonstrated that identifying patients and intervening early makes a big difference in outcomes. EMS has an opportunity to identify and treat this population in the field. The mainstay of treatment is early and aggressive fluid resuscitation. While fluid overload can be a concern, it is clear that in those patients for whom early sepsis is at the top of the differential, aggressive fluid resuscitation is the primary intervention and one that EMS can and should initiate. This is true even in the population of patients we worry about giving fluids to, those on dialysis or who have a history of congestive heart failure.

When in doubt, give fluids. Review the 2017 treatment guidelines "Suspected Sepsis." It supports up to a two-liter fluid bolus in patients who by history and vital signs are suspected of being at risk for sepsis.

What are you doing to reduce your risk factors for heart disease?

-By Patricia Frost RN, MS, PNP, Contra Costa EMS Director

February is American Heart Month. During this time we encourage all Contra Costa County EMS system providers to help us educate the community about the risks of cardiovascular disease.

But have you committed to making sure you are making heart healthy choices as part
In EMS we see the real-world consequences of heart disease every day. It is the leading cause of death in the United States, killing more than 600,000 Americans each year. That is why February is dedicated to raising awareness of heart health.

You have all heard the statistics. Cardiovascular disease kills more people each year than cancer, lower respiratory diseases and accidents. It is the number one killer in women age 20 and older, killing approximately one every minute.

But in our stressful environment, EMS personnel can easily fall into habits that negatively affect their own cardiovascular health. Here are daily habits to help you stay heart healthy:

- **Drink lots of water.** Good hydration reduces fatigue, improves concentration and your metabolism, and it will simply help you feel better. Remember to avoid caffeine, which acts as a diuretic.

- **Exercise.** Thirty minutes a day is a great way to reduce your heart disease risk, lower your blood pressure and reduce stress.

- **Eat better.** Avoid vending machines. Serve fresh fruit and vegetables at meetings, not donuts, bagels or sugary drinks.

Re-educating yourself to eat healthy can be a challenge, especially at work. Here's a handy chart about healthy alternatives to common snack foods, originally published by the Journal of Emergency Medical Services (JEMS).

So while you are helping promote February as Heart Awareness month, don't forget to include yourself, your colleagues and your family in the equation.

Join the effort by making heart healthy activities part of your work environment. Display table tents with heart facts and heart health information in your café, lobby and office. Post flyers around your workplace to promote American Heart Month. Host a heart health booth in your hospital or workplace on Feb. 3, National Wear Red Day, displaying heart health information.

Thanks for all you do. Be well.
Thank You, EMS Professionals

-By Michelle Voos, Prehospital Care Coordinator

We'd like to thank everyone who helped to make our inaugural Survivor's Reunion Luncheon a huge success. We look forward to continuing to host this annual event, so please keep us informed of any extraordinary cases you may come in contact with throughout the next year.

The luncheon was held Nov. 9th at The Clubhouse at Boundary Oak in Walnut Creek. This event provided an opportunity to recognize the success of our systems of care from the perspectives of bystanders, dispatchers, fire departments, ambulance providers, air ambulance providers, law enforcement, hospital personnel and patients. The highlight of the luncheon was the reunification of several cardiac arrest survivors with the EMS personnel and bystander heroes who saved their lives, including:

- First-responder personnel who helped rescue and revive a 9-year-old near-drowning victim: Dispatcher C. Barker; Martinez police Sgt. Ferrer; Contra Costa Fire personnel B. Grant and J. Walker; AMR personnel J. Bass and J. Reberg

- Moraga-Orinda Fire District personnel who intervened and resuscitated a 60-year-old Moraga resident with pulsing V-tach who went into cardiac arrest on the way to the hospital: M. Rattary, A. Hess, D. Johansen, D. Iman, M. Deweese and A. Leach

- First responders who revived a 16-year-old in Antioch who suffered sudden cardiac arrest during lifeguard training: Dispatcher J. Masterson; Contra Costa Fire personnel D. Woods, J. Hess, K. Piol, B. Sanders, N. Galvan and D. Rozner; AMR personnel M. Batch and W. Jackson
• Off-duty San Ramon Valley Fire personnel L. Phares and C. Rivers, who helped revive a 76-year-old man who went into cardiac arrest at their local 24-Hour Fitness, thanks in part to the AED the gym had available. San Ramon Valley Fire first responders were also recognized: Dispatchers L. Blackburn and J. Peters; San Ramon Valley Fire personnel C. Eberle, J. Sinclair, G. Sparkes, R. Spivey, P. Taylor and A. Simi

• First responders who successfully recognized and transported a 27-year-old patient with acute stroke: Richmond Fire Dispatcher D. Lamb; Richmond Fire personnel S. Harris, J. Carr and B. Faulkner; AMR personnel J. Wilson and A. Farinha

• Responders who resuscitated a 45-year-old man at a wedding in Pleasant Hill: Dispatcher J. Masterson; Pleasant Hill Police officers Outly and Kutsuris; Contra Costa Fire personnel S. Valencia, P. Doppe and J. Grant; AMR personnel A. Belotz, and R. Silva

• AMR Paramedic Tom Westbrook was recognized as the Star of Life for his exemplary clinical skills and contributions to emergency medical delivery in our county

• Retired EMS Prehospital Care Coordinator Pam Dodson received the Lifetime Achievement Award for her work implementing the HeartSafe Communities program

We are proud of our EMS system and thankful for each one of partners. We give each of you our sincere thanks for your hard work and commitment.
Stop Torturing Your Data
-By Craig Stroup, EMS Quality Improvement Manager

Like most quality managers, I rely heavily on my data to motivate our EMS system stakeholders to improve their performance. In many ways it's like a Major League Baseball coach providing his players with their statistics on batting average or number of runs batted in.

Most of the time, the players find the information valuable because they trust it. It reflects something they have lived through and they know how the numbers were generated. Most of the time it gives them a goal or, in our case, a number that they can use to improve.

In the end, it's not the data that drives the improvement. It's the players who trust in the data.

But, as quality managers, it's not unusual to find ourselves frustrated because the data doesn't seem to say what we needed it to say, and fails to move the end users. So we end up torturing the data, over and over, trying to find truth when the evidence is just too vague or absent. In the end, it is us and our stakeholders who are tortured by the flawed process.

What is the flaw? If you find yourself frustrated and torturing your data at the back end, it is most likely because you failed to properly plan at the front end. Specifically, if the data collection process is not defined by the consensus of people who will use it, mistrust and apathy may tear apart the whole effort. Before considering which data to collect, we must develop a consensus tool called a quality indicator specification sheet (ISS). We need ask all the important questions about the data beforehand, with the input and agreement of stakeholders. Unfortunately, too many of us learn the hard way when it comes to producing quality data reports.

The sooner we recognize that quality improvement is more about managing people than numbers, the sooner we will get it right. The hard and sometimes tedious work of producing good data, which leads to good quality reports, requires great patience because of the people factor. Putting time in at the front end to validate our data indicator will save us from the agony of figuring out ways to make our data behave at the back end.

Even Major League Baseball took years to develop trust in their data and performance metrics.
standards. But after years of trial and error, their performance measures have now become an integral part of an effective quality improvement process. We too need to evolve and learn from our mistakes.

The data is innocent. Your results are only the product of what you asked it to do. So stop torturing and start getting it right from the beginning. If people are going to use it, it is our job to get those people involved at the beginning - it’s a group consensus exercise.

You can have the greatest collection system and the brightest people in the world collecting your data. But if no one trusts it, it is basically worthless to everyone but you.

**Overexertion: 9 Symptoms and Solutions**

*This content was originally published at FireRescue1.com*

<table>
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<tr>
<th>9 symptoms</th>
<th>9 solutions</th>
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<tbody>
<tr>
<td>1. Nausea</td>
<td>1. Stretch</td>
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<td>Feeling sick or on the brink of vomiting after exercise (or an adrenaline spike) is a symptom of overexertion. Nausea is usually a temporary symptom of overexertion, but it’s a warning sign from your body, telling you to calm down.</td>
<td>According to Harvard University, stretching can reduce stress. Stretching can also help prevent injuries due to heavy exercise and sitting too much while on duty.</td>
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<td>2. Light-Headedness</td>
<td>2. Maintain Good Posture</td>
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<td>According to Livestrong, exercise causes the blood vessels in your legs to expand, which brings blood into the legs and feet. When you stop exercising (or your adrenaline levels drop) without taking time to cool down, your heart rate slows abruptly and blood can pool in your lower body, causing dizziness.</td>
<td>Your mother always told you to “sit up straight!” for good reason. Awkward posture or prolonged sitting can place too much stress on the wrong part of your body. Try to sit with a tall posture and keep your shoulders dropped while driving on shift. It might feel uncomfortable at first, but your body will eventually thank you.</td>
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<td>3. Fatigue</td>
<td>3. Cool Down</td>
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<td>Overexertion can also lead to fatigue. Burning the candle from both ends for too long takes a mental and physical toll. Fatigue can lead into irrationality and irritability, also symptoms of overexertion.</td>
<td>Cooling down after exercise or an adrenaline rush slows your heart rate and prevents dizziness. Take a five-minute walk or gently stretch until you’re relaxed.</td>
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<td>4. Irregular Heartbeat</td>
<td>4. Replenish fluids and electrolytes</td>
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<td>Cardiovascular stress from either increased activity or adrenaline can cause heart palpitations. According to Livestrong, exceeding your maximum heart rate can result in hyperventilation, fainting, stroke and heart attack.</td>
<td>Water is an obvious necessity while working out, but if you’re exercising for more than 60 minutes, drink a sports drink or another type of electrolyte beverage to help replenish your energy.</td>
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